

REMARKS

Claims 1-10 are pending in the application. Claims 1-7 have been rejected. Claims 8-10 have been withdrawn. In light of the following remarks, applicant respectfully requests favorable reconsideration.

On the Merits

The Office Action has maintained the previous rejection of claims 1, 2 and 4-6 under 35 U.S.C. § 102(b) as being anticipated by *Takeuchi* (U.S. 5,641,696). The Office Action has indicated that the arguments presented in the response filed on July 9, 2006 were considered, but were unpersuasive. However, applicant maintains *Takeuchi* does not disclose what is required in claim 1.

In the previous response applicant stated that:

Takeuchi discloses, a first ion-implantation is carried out at an acceleration energy 60keV and a dose $3 \times 10^{15}/\text{cm}^2$ (column 10, lines 13-19) and a second ion-implantation is carried out at an acceleration energy 30keV and a dose $5 \times 10^{14}/\text{cm}^2$ (column 10, lines 38-42).

Independent claim 1 requires:

...the step of forming the first junction includes at least a first ion implantation which is carried out with a first acceleration energy and a first dose, and a second ion implantation which is carried out with a second acceleration energy higher than the first acceleration energy and a second dose lower than the first dose. Emphasis added.

As indicated in the previous response, it is apparent *Takeuchi* does not disclose what is required by independent claim 1, “the second ion implantation which is carried out with a second acceleration energy **higher** than the first acceleration energy.” Emphasis added.

The Office Action states that the first acceleration energy disclosed in *Takeuchi* is “30KeV” and the second acceleration energy higher than the first acceleration energy is “30KeV.” Applicant submits that the Office Action therefore has not shown the above mentioned feature of the second ion implantation being carried out with a second acceleration energy higher than the first acceleration energy, and that *Takeuchi* discloses a second implantation energy lower than the first implantation energy.

In *Takeuchi* (column 10, lines 38-42), there is a description that phosphorus (P) is ion-implanted only in a drain region at an acceleration energy 30keV and a dose $5 \times 10^{14}/\text{cm}^2$ as the second ion-implantation. In Fig. 8B, an n-type impurity of low concentration (shown as N) is ion-implanted in one of source/drain regions - here, only in the drain region. Preceding this description, in *Takeuchi* (column 10, lines 13-19), there is a description that arsenic (As) is ion-implanted in both of the source/drain regions at an acceleration energy 60keV and a dose $3 \times 10^{15}/\text{cm}^2$. In Fig. 7B, an n-type impurity of high concentration (shown as N⁺) is ion-implanted on both of the source/drain regions.

Then, it is described clearly in *Takeuchi* (column 10, lines 38-42) that, in the above ion-implantations, the second ion-implantation is carried out at a concentration lower than the first ion-implantation due to an ion type of the second ion-implantation. From these descriptions and Figs. 7B and 8B, it is definite that, in *Takeuchi*, a first ion-implantation is a high acceleration energy and a high dose ($E_H D_H$) and a second ion-implantation is a low acceleration energy and a low dose ($E_L D_L$).

In claim 1 of the present application, when ion-implanting extension regions, a first ion-implantation is carried out at a low acceleration energy and a high dose ($E_L D_H$) and a second ion-implantation is carried out at a high acceleration energy and a low dose ($E_H D_L$). Therefore, *Takeuchi* does not disclose what is required by independent claim 1.

Furthermore, in *Takeuchi*, spacers and the like are provided to form an offset after the first ion-implantation, and the second ion-implantation is carried out in this condition. Therefore, an ion-implantation position is not the same between the first and second ion-implantations. In contrast, in the present application, an offset is not formed. Therefore, an ion-implantation position is the same between the first and second ion-implantations.

In light of the aforementioned arguments, applicant respectfully traverses the rejection.

Response After Final
Application No. 10/806,247
Attorney Docket No. 042261

Claim Rejections - 35 U.S.C. § 103

Claims 3 and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Takeuchi* (U.S. 5,641,696) in view of *Taka et al.* (U.S. 4,853,342). As claims 3 and 7 ultimately depend upon claim 1, applicant submits that the rejection to these claims should be withdrawn in light of the arguments presented above regarding claim 1.

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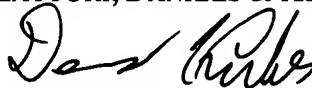
In view of the aforementioned remarks, applicant submits that the claims, are currently in condition for allowance. Applicant requests such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact applicant's undersigned agent to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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